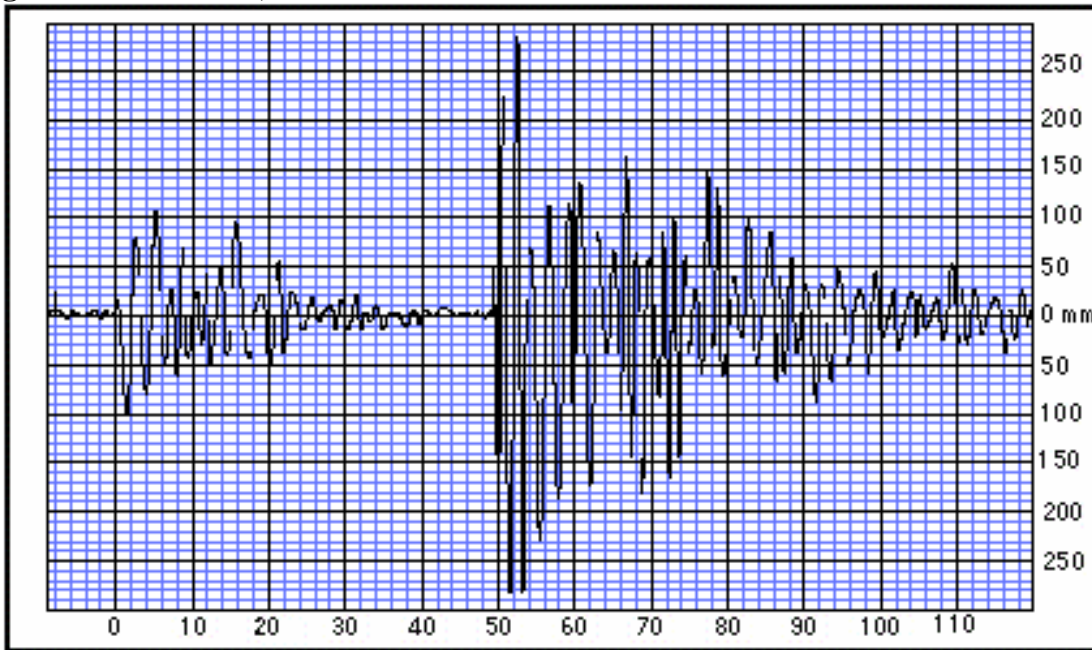


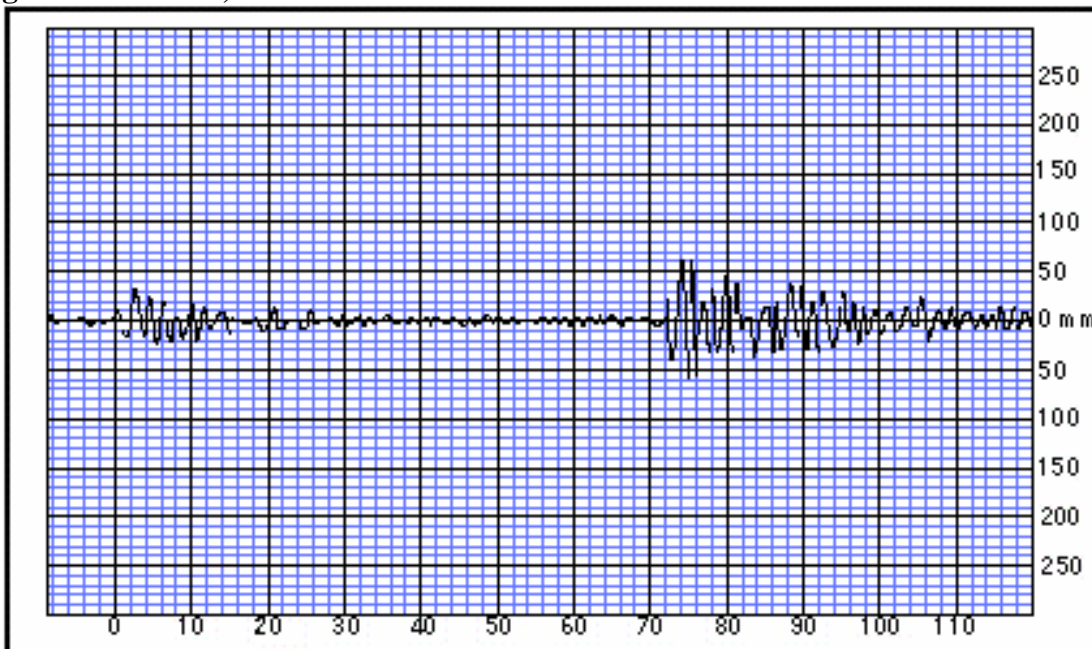
Determining the epicenter location and magnitude of an earthquake from seismogram data.

The data for the famous Loma Prieta earthquake (Northern California) as recorded at three different seismic recording stations are given below. Determine the distance of those seismic recording stations from the earthquake epicenter using the seismograms and the Travel-Time graph provided. The horizontal scale for the seismograms is in seconds.

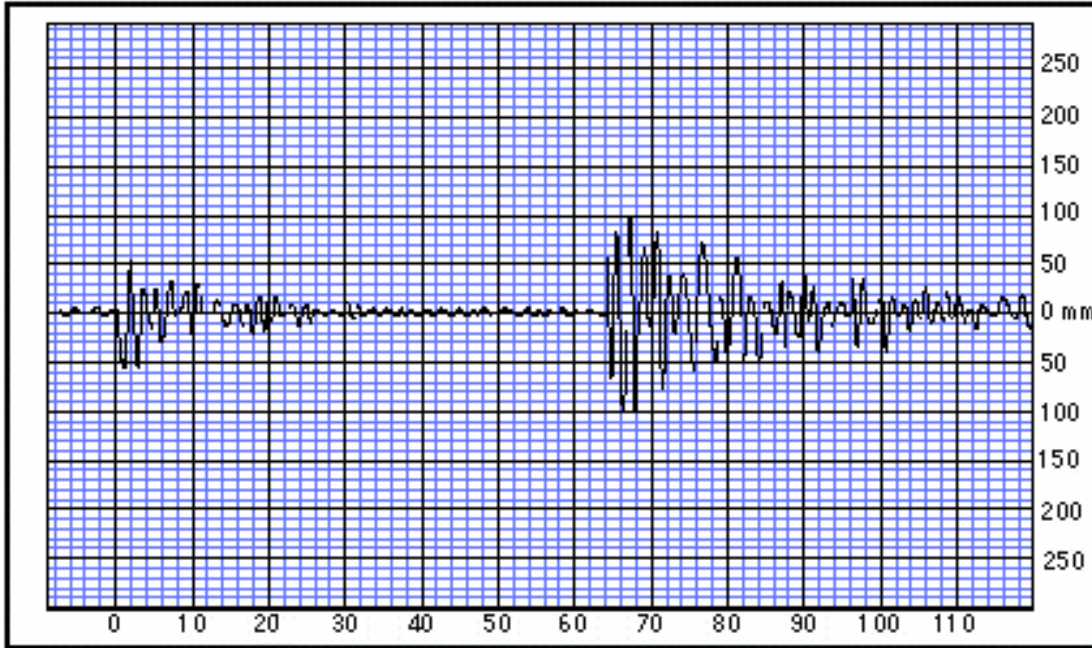
Seismogram from Eureka, CA



Seismogram from Elko, NV



Seismogram from Las Vegas NV



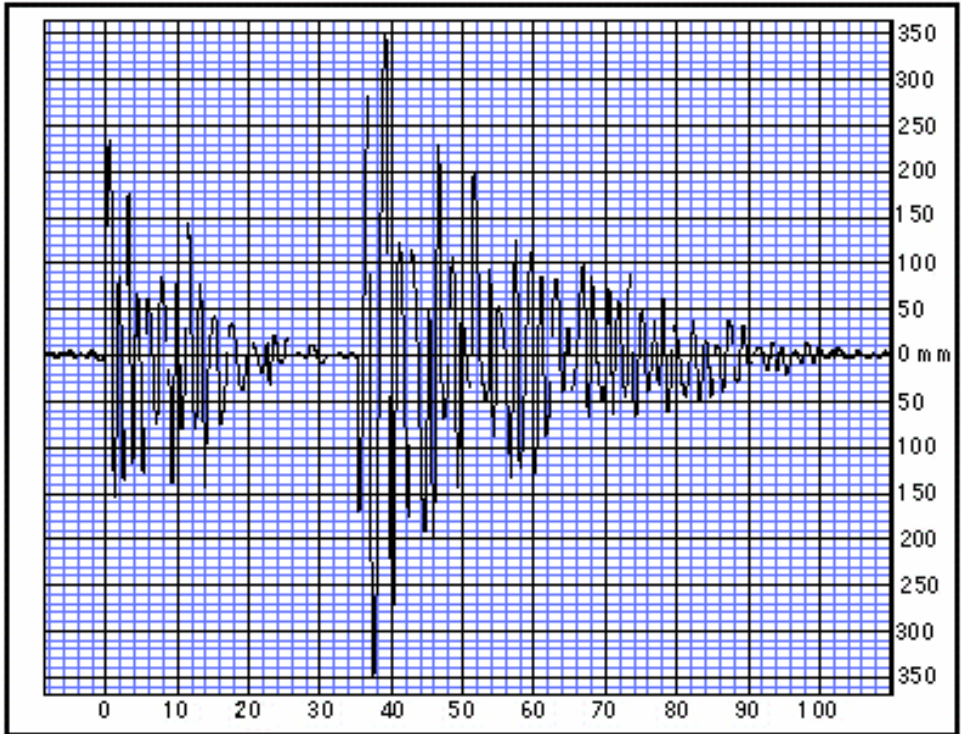
Record your answers here:

	S-wave arrival time	P-wave arrival time	S-P (seconds)	Distance from epicenter (km)	S-wave maximum amplitude (mm)
Eureka, CA					
Elko, NV					
Las Vegas, NV					

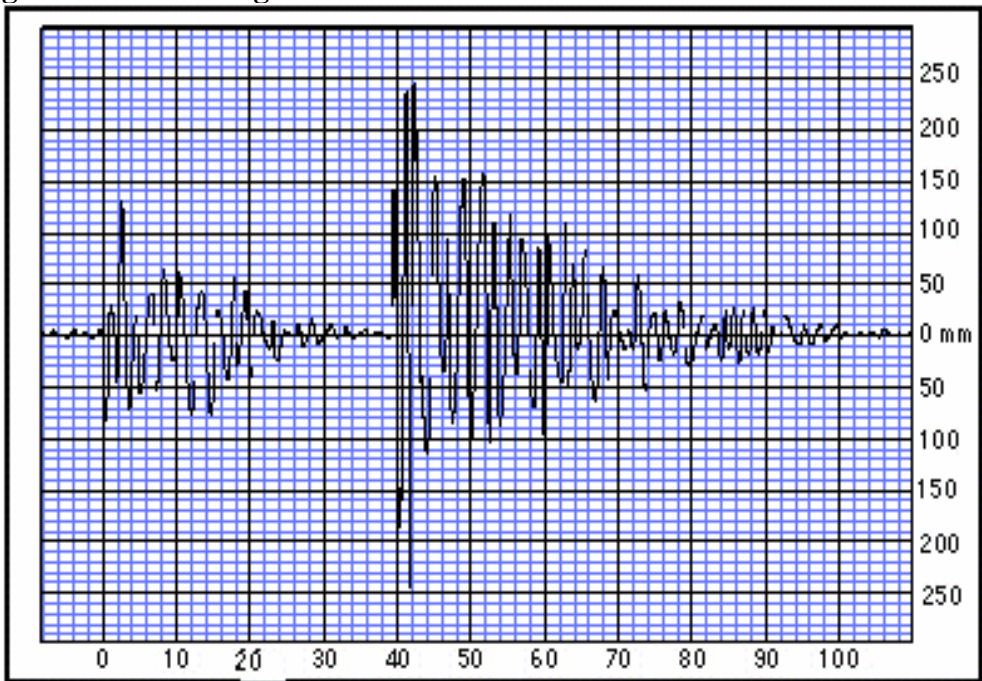
Determine the location of the epicenter for the Loma Prieta earthquake on the map provided. Points will be taken off for lack of accuracy and neatness

Next, the data for the famous Northridge earthquake (Southern California) as recorded at three different stations is given below. Determine the distance of those seismic recording stations from the earthquake epicenter using the seismograms and the Travel-Time graph provided.

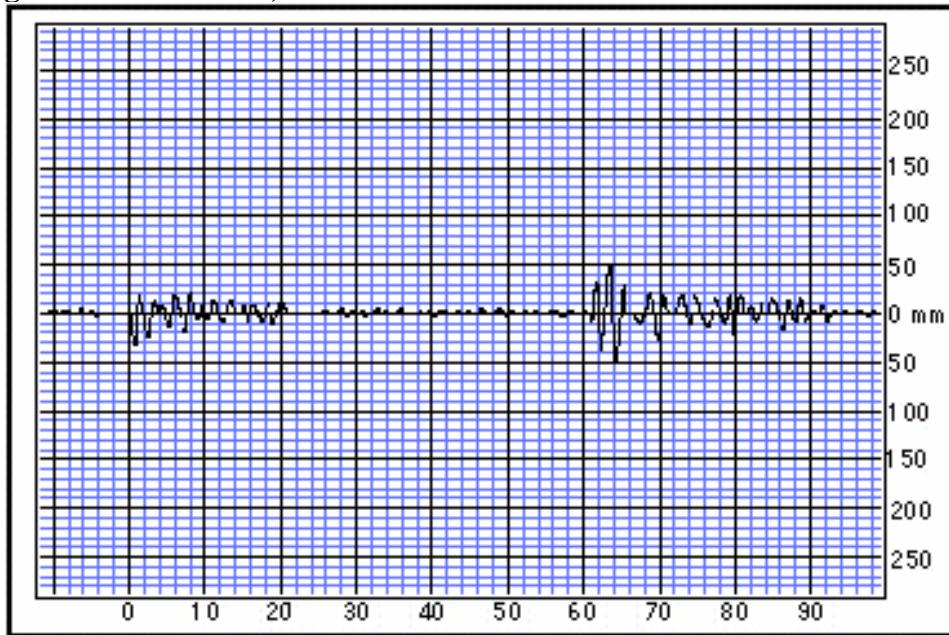
Seismogram from Fresno, CA



Seismogram from Las Vegas NV



Seismogram from Phoenix, AZ



Record your answers here:

	S-wave arrival time	P-wave arrival time	S-P (seconds)	Distance from epicenter (km)	S-wave maximum amplitude (mm)
Fresno, CA					
Las Vegas, NV					
Phoenix, AZ					

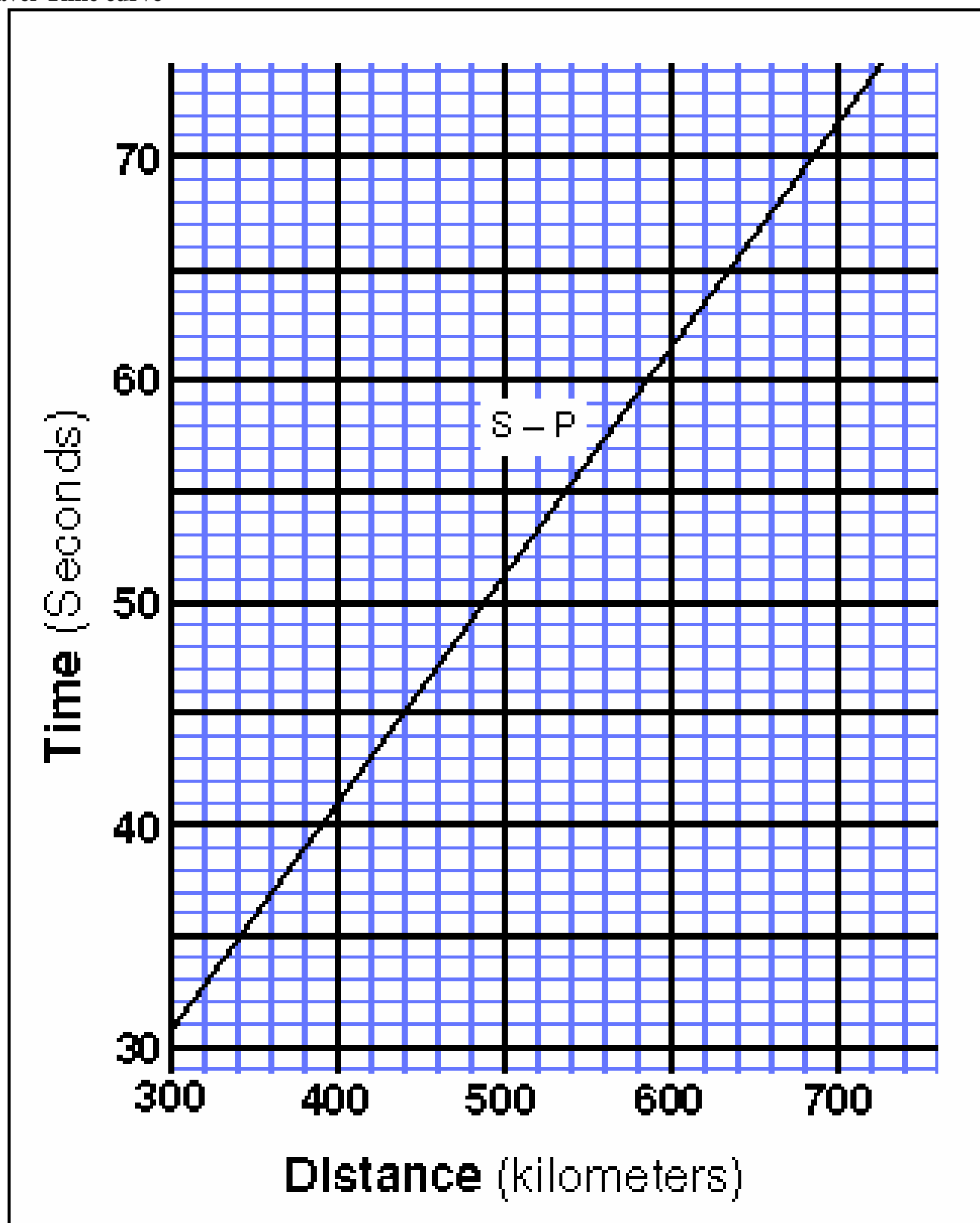
Determine the location of the epicenter for the Northridge earthquake on the map provided. Points will be taken off for lack of accuracy and neatness

Both of these epicenters lie on the San Andreas Fault. Join those two points with a straight line and determine the approximate orientation of the fault (the top of the map points North)

Orientation of the San Andreas Fault is (Select any ONE option)

- a) North-South
- b) East-West
- c) Northeast-Southwest
- d) Northwest-Southeast

Travel-Time curve

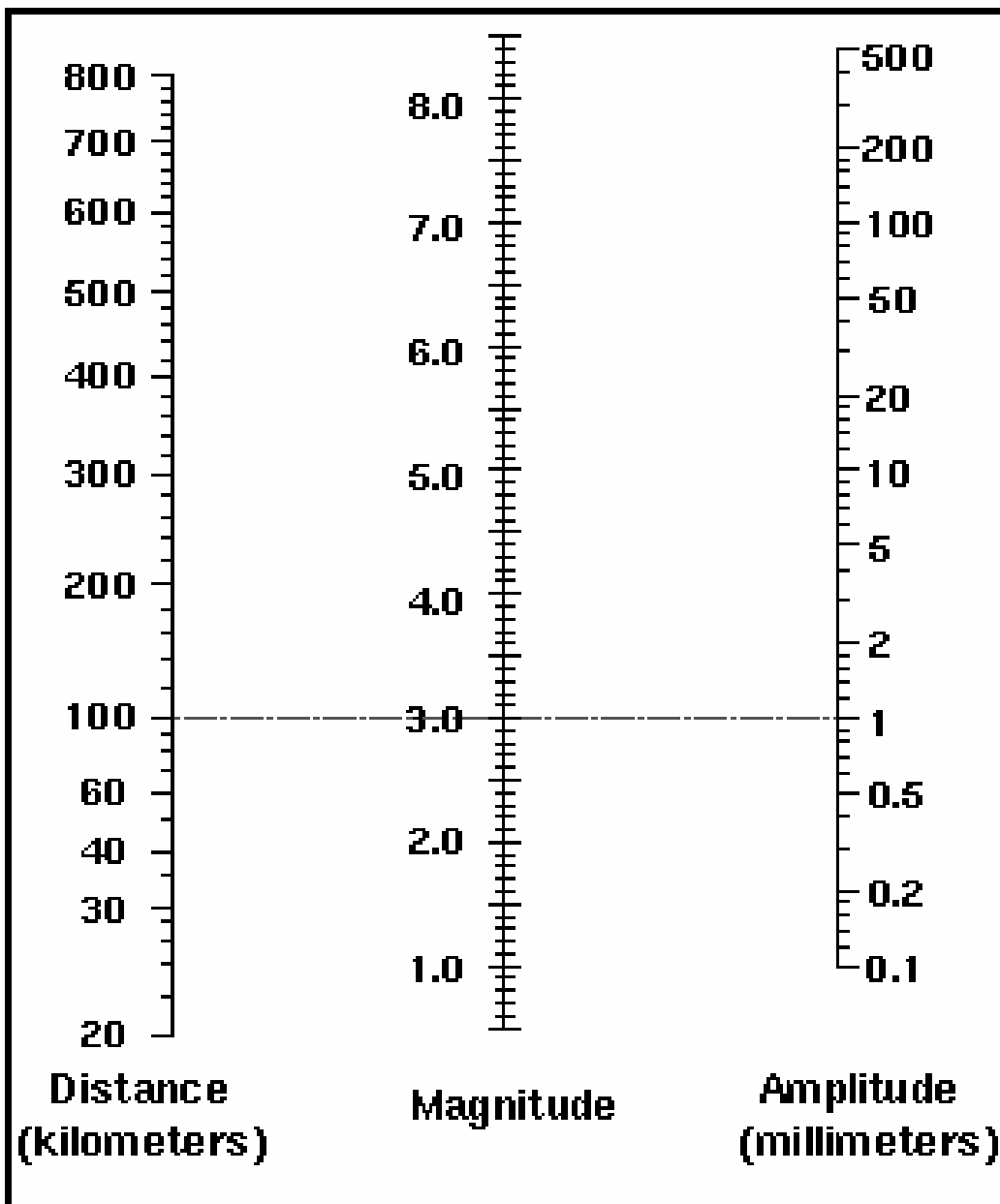


Determine the Richter Magnitudes of BOTH Loma Prieta and Northridge earthquakes using the nomogram provided below.

For this, measure the S-wave amplitudes from a seismogram and use that number on the right axis. Use the distance from the epicenter for the same seismogram (from the above table) on the left axis. Join these two numbers with a straight line. Repeat this procedure for ALL THREE seismograms corresponding to a particular earthquake. The point at which those three lines intersect the center axis would give you an estimate of the Richter Magnitude for that particular earthquake.

Richter Magnitude of the Loma Prieta earthquake is _____

Richter Magnitude of the Northridge earthquake is _____





0 100 200 300 400 500 600 700 800
Kilometers